

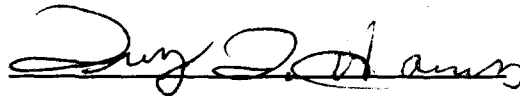
Certificate of Service

I, Ivy Harris, certify that on December 4, 1992, a copy of the foregoing BUREAU'S REPLY TO EAJA APPLICATION, filed on behalf of the Chief, Private Radio Bureau, was sent by First Class mail to:

Martin J. Barab, Esq.
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1819 H Street, N.W.,
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Washington, D.C. 20006
(Hand carried)

Honorable Joseph Chachkin
Administrative Law Judge
Federal Communications Commission
2000 L Street, N.W.,
Room 226
Washington, D.C. 20554
(Hand carried)



**Dame & Sons Construction Co. and Local 978,
United Brotherhood of Carpenters and Joiners
of America, AFL-CIO. Cases 17-CA-13613(E)
and 17-CA-13678(E)**

February 13, 1989

**SUPPLEMENTAL DECISION AND
ORDER**

**BY CHAIRMAN STEPHENS AND MEMBERS
JOHANSEN AND CRACRAFT**

On November 20, 1987, Local 978, United Brotherhood of Carpenters and Joiners of America, AFL-CIO filed an unfair labor practice charge as well as a representation petition. On December 30, 1987, the Regional Director issued a complaint and notice of hearing. Pursuant to a request to proceed and a Stipulated Election Agreement, an election was scheduled for and held January 4, 1988. Thereafter, the Union filed timely objections to the election, and on January 13, 1988, the Union filed an additional unfair labor practice charge. On February 4, 1988, the Regional Director issued an order consolidating cases, consolidated complaint and notice of hearing. On February 12, 1988, the Regional Director issued an order consolidating the C case with the R case. The consolidated complaint alleged that the Applicant had unlawfully interrogated an employee concerning his union membership, promised an employee benefits, including permanent employment, if the employee refrained from engaging in activity in support of the Union, threatened an employee with layoff or discharge if the employee continued activities in support of the Union, and laid off Mike Andrews because he had joined the Union.

On March 18, 1988, the parties entered into an agreement approved by the Acting Regional Director whereby the January 1988 representation election was set aside in favor of a rerun election and the remaining disputes were submitted to the grievance-arbitration procedure of the applicable contract. On March 21 the Acting Regional Director issued an order withdrawing the complaint and notice of hearing on the grounds that the matters in dispute might be resolved through the grievance-arbitration procedure of the collective-bargaining agreement. On March 24 the Acting Regional Director notified the parties that the withdrawal of complaint was based on the determination that further proceedings on the charges should be administratively deferred for arbitration. However, this did not preclude subsequent reissuance of the complaint should circumstances so warrant.

On May 24, 1988, the Applicant and the Union entered into a non-Board agreement. Pursuant to

this agreement the Applicant paid Andrews \$800 and the Union withdrew the representation petition and the unfair labor practice charges, and abrogated reinstatement claims as well as claims to a collective-bargaining relationship with the Applicant and any claims concerning the preceding events.

On May 25 the Regional Director notified the parties that the charges had been withdrawn with approval. On June 23, 1988, the Applicant filed an application for award of fees under the Equal Access to Justice Act, Pub. L. 96-481, 94 Stat. 2325 (the EAJA), and Section 102.143 of the Board's Rules and Regulations.

On July 11, 1988, the Board issued a Notice to Show Cause why the EAJA application was not untimely and the Applicant is not eligible to apply for an award of fees and expenses because the case was settled.

On July 14 the General Counsel moved to dismiss the application on the following grounds: (1) it was untimely pursuant to Sections 102.48(a) and (d) of the Board's Rules and Regulations;¹ (2) the Applicant's entry into the non-Board settlement agreement precluded its being a prevailing party in the dispute concerning which the General Counsel had been substantially justified in issuing complaint;² and (3) the application failed to substantiate adequately eligibility requirements and legal fees and expenses.

The Applicant responded that the application was timely filed within 30 days of the Regional Director's notification of withdrawal of the charges and that there was no substantial justification for issuing complaint. Furthermore, the Applicant argued that it prevailed in the non-Board settlement because the payment was merely the quid pro quo for the withdrawal of the charges.

The General Counsel responded reiterating her earlier position.

The National Labor Relations Board has delegated its authority in this proceeding to a three-member panel.

¹ Sec. 102.148(a) of the Board's Rules and Regulations states:

An [EAJA] application may be filed after entry of the final order establishing that the applicant has prevailed in an adversary adjudication proceeding or in a significant and discreet substantive portion of that proceeding, but in no case later than 30 days after the entry of the Board's final order in that proceeding.

Sec. 102.148(d) further specifies as follows:

For purposes of this section the withdrawal of a complaint by a Regional Director . . . shall be treated as a final order . . .

² Sec. 5 U.S.C. § 504(a)(1) of the EAJA, which provides:

An agency that conducts an adversary adjudication shall award, to a prevailing party other than the United States, fees and other expenses incurred by that party in connection with that proceeding, unless the adjudicative . . . position of the agency as party to the proceeding was substantially justified or that special circumstances make an award unjust.

The Board has considered the General Counsel's and the Applicant's responses to the Notice to Show Cause and has decided to grant the General Counsel's motion to dismiss the Applicant's EAJA application.³

We cannot find that the May 24 non-Board settlement agreement was favorable to the Applicant. We cannot know what the parties sought and their relative strengths and weaknesses when they finally sat down to negotiate and resolve this dispute. The agreement represents a compromise in which there is something for everyone. The charges were withdrawn as an element of a compromise, not as a unilateral release of the Applicant from all obligations

³ In the circumstances of this case, we find that the withdrawal of complaint was not a final order terminating the proceeding. We note that the withdrawal and the related explication letter notified the parties that the charges were merely in abeyance pending grievance-arbitration procedures, that the matters in dispute were yet to be resolved, and that the complaint might subsequently reissue. Rather, the Regional Director's May 25 letter notifying the parties of the approved withdrawal of the charges signified the resolution of the dispute and the termination of the proceeding. Accordingly, the application must be regarded as timely.

claimed in the complaint. The Applicant incurred financial responsibilities that it would not have had if the complaint had been dismissed. Furthermore, the settlement precludes finding that either the Government or the Applicant won or lost. Rather, "neither won nor lost, but clearly a prime purpose of the Act, the promotion of collective bargaining, was well served."⁴ Accordingly, the Applicant is not a prevailing party within the meaning of the EAJA.⁵

ORDER

It is ordered that the application of the Applicant Dame & Sons Construction Co., Phillipsburg, Missouri, for an award under the Equal Access to Justice Act is dismissed.

⁴ *Carthage Heating Co.*, 273 NLRB 120, 123 (1984). Compare *Shrewsbury Motors*, 281 NLRB 486 (1986).

⁵ Because we find the Applicant was not the prevailing party, we need not reach the remaining grounds of the General Counsel's motion to dismiss.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Revocation of License of)	
)	PR Docket No. 92-119
SANDRA V. CRANE)	
Amateur Radio Station)	
N6TFO)	
)	
and)	
)	
Suspension of License of)	
)	
SANDRA V. CRANE)	
Amateur Extra Class)	
Radio Operator License)	
)	
and)	
)	
Revocation of License of)	
)	
CHARLES P. PASCAL)	
Amateur Radio Station)	
WB6CTY)	
)	
and)	
)	
Suspension of License of)	
)	
CHARLES P. PASCAL)	
Amateur Extra Class)	
Radio Operator License)	

SUPPLEMENTARY DECLARATION OF FRED MAIA

I, Fred Maia, under penalty of perjury, depose and state as follows:

1. I am the president of the W5YI Group. As president, I supervise the activities of the W5YI-VEC (Volunteer Examiner Coordinator) organization, which is a component of the W5YI Group. I have been president of the W5YI Group since 1980. My duties in connection with the W5YI-VEC include: recruiting and

accrediting volunteer examiners (VEs); coordinating examination sessions with VEs; providing amateur radio license testing material and the associated forms; screening, approving and forwarding successful applications; collecting and archiving examination session records; and supervising personnel who assist me in carrying out these duties. I am very familiar with the kinds of documents that are submitted to the W5YI-VEC.

2. The VEC system was established when the Federal Communications Commission decided to privatize the preparation and administration of examinations for amateur service licenses. The W5YI-VEC is one of the 18 VECs that carry out this privatization pursuant to agreements with the Federal Communications Commission. The W5YI-VEC has accredited approximately 13,200 VEs, of which approximately 760 are "contact" VEs.

3. The contact VEs are the key to the W5YI-VEC's system. They are the persons to whom the W5YI-VEC sends (upon request) prepared examinations or its examination preparation software. They are responsible for scheduling examination sessions, for recruiting VEs to conduct the sessions and for providing uncompromised test materials for the sessions. After an examination session, the contact VE is required to send to the W5YI-VEC a report concerning the session as well as the applications and answer sheets of the successful examinees.

4. Steve Sternitzke, of San Antonio, Texas, is a contractor of the W5YI Group. Mr. Sternitzke developed the W5YI Group's software. This software randomly selects questions from the question pools. In addition,

Mr. Sternitzke uses the software to prepare examinations such as those designated as H901 and J901. Mr. Sternitzke sends the examinations he prepares to me in Arlington, Texas. I have them reproduced and I furnish them, upon request, to contact VEs. When I get a request, I send the contact VE a packet consisting of five different versions of each written examination element that the VE is authorized to administer. Mr. Sternitzke produces approximately 20 different versions of each written examination element per year. The W5YI-VEC keeps no record of the requests for examinations or of examination packets sent out.

5. VEs accredited by the W5YI-VEC do not have to use examinations prepared for the W5YI-VEC by Mr. Sternitzke; they may prepare examinations themselves from the question pools using the W5YI Group's software or any other method consistent with Section 97.507 of the Commission's Rules, 47 C.F.R. § 97.507.

6. The W5YI-VEC does not require contact VEs who request examinations to specify the examination session at which they will be used. The W5YI-VEC has no way of knowing which versions of an examination will be used at a particular examination session. That determination is made by the VEs.

7. The contact VE for the August 4, 1991, examination session at the home of Sandra V. Crane was Terence M. Pierce. The contact VE for the August 24, 1991, examination session at the home of Sandra V. Crane was Thomas E. Fakehany. Both Mr. Pierce and Mr. Fakehany were authorized to schedule examination sessions without notifying the W5YI-VEC.

8. The examination papers (Attachments 5 through 16 to my first affidavit)

of the applicants examined on August 4, 1991, at the home of Sandra V. Crane show that all twelve applicants took test H901 (Attachment 2 to my first affidavit) as examination element 3A. This test was prepared by Mr. Sternitzke. I cannot determine from the examination papers which test was given for examination element 2.

9. The examination papers (Attachments 18 through 25) of applicants examined on August 24, 1991, show that seven of the eight applicants took test H901 (Attachment 1 to my first affidavit), which was prepared by Steve Sternitzke, as examination element 2; six of the eight applicants took test designated by the number 47648 as element 3A; and one applicant took test J901 (Attachment 3 to my first affidavit), which was prepared by Steve Sternitzke, as examination element 3A. I cannot determine, from the examination papers, the element 2 and or the element 3A test given to the eighth applicant, James Pham.

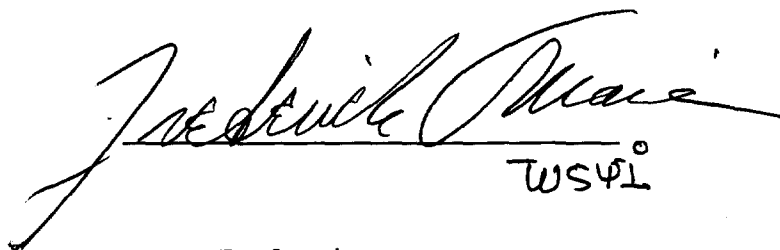
10. The test designated by the number 47648 was produced through the use of the W5YI Group's software. I can determine this because the number 47648 represents the number of seconds since midnight, which is used as the "random seed" number for generating examinations through the use of the W5YI Group's software. Because the test is not one of these prepared by the W5YI-VEC, I cannot determine its contents. The test could have been prepared by anyone having access to the W5YI Group's software. The software is furnished to any contact VE who requests it.

11. The W5YI-VEC (and all other VECs, as far as I know) has authorized VEs

to pass Morse code examinees who get at least one minute of "solid copy." For examinees who take element 1A (5 words per minute) this is 25 consecutive characters.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 2 1992.


WSVI

Fred Maia

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Revocation of License of)	PR Docket No. 92-119
)	
SANDRA V. CRANE)	
Amateur Radio Station)	
N6TFO)	
)	
and)	
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Suspension of License of)	
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SANDRA V. CRANE)	
Amateur Extra Class)	
Radio Operator License)	
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and)	
)	
Revocation of License of)	
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CHARLES P. PASCAL)	
Amateur Radio Station)	
WB6CIY)	
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and)	
)	
Suspension of License of)	
)	
CHARLES P. PASCAL)	
Amateur Extra Class)	
Radio Operator License)	

DECLARATION OF STEVE STERNITZKE

I, Steve Sternitzke, under penalty of perjury, depose and state as follows:

1. I am the creator of the software (herein referred to as "exam software") which WSYI-VEC has released to its Volunteer Examiners in the field. I am a professional software programmer by trade and I have worked for 16 years at Datapoint Corporation in San Antonio, Texas. I have a Bachelor of Science degree in computer science from the University of California, Irvine. I hold

an Amateur Extra Class amateur license (NS5I), which I have held since 1984. I have supplied the master copies of all printed W5YI-VEC amateur examinations since 1985 and I created the exam software for W5YI-VEC almost three years ago. I am also working closely with the Question Pool Committee (QPC) of the National Conference of Volunteer Examiner Coordinators (NCVEC) to reword and simplify the questions for Elements 2 and 3A.

2. I would like to go on record as saying that the exam software was designed to produce any number of unique amateur examinations from a given question pool without involving the operator of the exam software in the question selection process. For the purposes of an affidavit, some explanation of the operation of the exam software and its question selection process needs to be made:

The exam software uses a commercial package (known as Microsoft QuickBasic) as the "engine" which produces the examinations. QuickBasic contains a random decision maker (technically known as a pseudo-random number generator). The exam software utilizes Quick Basic's random number facility as the basis for its choice of questions to be selected for inclusion in an exam. The randomness of this facility is quite good. Several techniques well known to computer science are used to ensure that the random choices made by the exam software have as little pattern as possible. The goal of this process is to ensure that any question within a subelement is as likely to be picked for an exam as any other, but also to ensure that the questions actually picked are picked in as unpredictable a fashion as possible.

3. There is, however, another possibility which should be considered.

The exam software, which is sent upon request to contact VEs, depends upon two computer disk files to generate examinations. One disk file contains the text of an entire question pool (e.g. the General class pool), and the other file contains a list of the question designators (e.g. 3BA-3.2, 3BA-3.3, etc.) which are currently valid for a given question pool. If a question is declared to be deleted by the Question Pool Committee, (e.g. 3BA-3.3), we instruct our Volunteer Examiners (VEs) to edit the second (designator) file and remove the question designator. (In this example we would ask VEs to delete the line containing "3BA-3.3".) This prevents the deleted question from ever being selected for an examination.

4. It would therefore be possible for a VE to greatly reduce the number of pool questions available for exam software selection by eliminating most of the designators in the second disk file. The software would appear to perform in a normal manner, but it would generate examinations which, although they would conform to Part 97.503, would be selected from only a portion of the question pool. Of course, W5YI-VEC does not publish this fact nor do we suggest that any VE should limit the exam software to only a few questions in any subelement of a question pool. This exclusion of questions is equivalent to a VE deciding to hand-pick certain questions from a subelement for an examination.


5. On the other hand, if a VE uses the printed exams distributed by W5YI-VEC for an examination session instead of using software-generated exams, an entirely different set of circumstances arises. I create the master copy of all printed exams for W5YI-VEC using a desktop publishing setup in my home

and send a sealed package containing the masters directly to Fred Maia (W5YI). He is responsible for printing and distributing the exams to the VE teams nationwide.

6. Although the question selection for the master copies is performed by a computer program, it is a different program from the one used by the exam software. It is so much different that a VE could not statistically record the exam software's choices to determine which questions might be selected for use on the printed exams. In addition, during the course of creating the master copy of a printed exam, I often replace questions in the same subelement which better suit the amount of room I have on a printed page. This further adds to the unpredictability of which questions are used on a printed exam. In short, it is not possible for a VE to predict which questions will be chosen for inclusion on a printed exam.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 12-2-92.



Steve Sternitzke

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Revocation of License of)	
)	PR Docket No. 92-119
SANDRA V. CRANE)	
Amateur Radio Station)	
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)	
CHARLES P. PASCAL)	
Amateur Extra Class)	
Radio Operator License)	

SUPPLEMENTARY DECLARATION OF CHRISTINE F. McELWAIN

I, Christine F. McElwain, under penalty of perjury, depose and state as follows:

1. I hold the license for amateur station KC6BLL and a General Class operator license. I have been an amateur for about 4 years and have held a General Class operator license since November 1989. I am a member of the San Fernando Valley Amateur Radio Club.

2. I met David Morse about 4 years ago through the San Fernando Valley Amateur Radio Club, to which we both belong. Mr. Morse is a casual acquaintance of mine, whom I see infrequently.

3. In July 1991 Mr. Morse and I were present at a barbecue sponsored by an amateur radio club. I knew, at that time, that Mr. Morse held an important position in the ARRL, that of "official observer coordinator." Mr. Morse told me, at the barbecue, that, in his capacity as official observer coordinator, he'd received complaints alleging the sale of amateur licenses. He asked if I would be interested in helping to determine whether licenses were being sold. He told me that, if licenses were not being sold, he wanted to dispel the rumors that were circulating. I told Mr. Morse that I was interested in participating.

4. Shortly after the barbecue, Mr. Morse telephoned me to determine if I was still interested in participating in the undercover investigation. I told him that I was. During this conversation, Mr. Morse told me that he'd received license selling complaints about an amateur radio school operated by Robert Flores and against the California Amateur Radio School, operated by Sandra V. Crane and Charles P. Pascal. Before this conversation, I had never heard of Mr. Flores, Mr. Pascal or Ms. Crane. Mr. Morse did not tell me about the details of the complaints or who had complained. He did not express an opinion about the validity of the complaints. After my conversation with Mr. Morse, it was my understanding that he wanted me to participate in the investigation with an open mind and with no preconceptions.

5. I did not discuss the undercover investigation with Fred Ordway or George Sfair.

6. I first attempted to investigate the radio school operated by Mr. Flores. I reached Mr. Flores by telephone but he was not interested in having me in his class. I had no difficulty making arrangements to attend class at the California Amateur Radio School.

7. I recognize all of the handwriting and the handwritten markings on Attachments 4 and 11 to my first affidavit as mine.

8. I have not seen a copy of the questions for the examination on August 4, 1992. ^{SINCE THAT DATE.} I, nevertheless, am certain that the material covered in the instruction given the same day by Charles P. Pascal and Sandra V. Crane in the class I attended that day included all or virtually all of the information necessary to answer those questions. After reading each question in the examination, I made a mental note that the information necessary to answer the question had been included in the instruction that had just been given. ^{ON ELEMENT 2 OF} ^{GIVEN} ^{CM}

9. My notes (Attachment 1 to my first affidavit) taken during the class taught by Mr. Pascal with the assistance of Ms. Crane on August 4, 1991, are very complete. While I did not take down every word spoken by Mr. Pascal and Ms. Crane, I took notes on virtually everything they covered. The completeness of these notes is demonstrated by the fact that 24 of the 25 questions on the element 3A examination I took (Attachment 3 of my first affidavit) can be

EM (ATTACHMENT 1A & 1B)
answered from my notes or from the hand-out¹ I was given (~~Attachment 1~~). To illustrate this I have attached a copy of the element 3A examination (Attachment 2), which I have marked to indicate where in my notes and in the hand-out the information needed to answer 24 of the 25 questions can be found. This supersedes the "Q" designations on Attachment 4 to my first affidavit, which were incomplete. (The "Q's" designate questions which were actually on the examinations I took.)

10. My notes (Attachment 6 to my first affidavit) taken during the class taught by Mr. Pascal with the assistance of Ms. Crane on August 24, 1991, are also very complete. While I did not take down every word spoken by Mr. Pascal and Ms. Crane, I again took notes on virtually everything they covered. The completeness of these notes is demonstrated by the fact that all 55 questions on the element 2 and element 3A (Attachments 9 and 10 to my first affidavit) examinations I took can be answered from my notes or from the hand-out I had been given (Attachment 3). To illustrate this I have attached copies of the element 2 and 3A examinations (Attachments 4 and 5) which I have marked to indicate where in my notes and in the hand-out the information needed to answer all 55 questions can be found. This supersedes the "Q" designations on Attachment 11 to the first affidavit, which were incomplete.

11. My notes taken on August 4, 1991, are not as voluminous as those taken

¹ I recognize the hand-written markings on the hand-out¹ as mine. They indicate items that were not covered in class.

on August 24, 1991. The main reason for this is that, on August 4, 1991, I took notes only when the material was covered for the first time and did not take any additional notes when the same material was repeated. (Mr. Pascal and Ms. Crane used the technique of teaching the material through repetition.) On August 24, 1991, I took notes during both the initial presentation of material and during the repetition of it. I also made an additional effort to write down as much as possible on August 24, 1991. In addition, my notes taken on August 24, 1991 included information about occurrences during the class and examination session, while my notes taken on August 4, 1991, concerned only the substantive material covered during the class.

12. During the examination on August 24, 1991, I took a different element 3A examination from that taken by the other examinees. The VEs expressed surprise about this. A small boy about 8 years old was among the examinees at August 24, 1991, examination session. At the time I left the examination session, he was being retested, apparently because he had initially failed.

13. On September 14, 1991, I took a 5 words per minute Morse code test. The test was administered by playing a tape. When the VEs asked for the code test tape, Ms. Crane removed it from a box that I had noticed at the test site before the VEs arrived. Just before the test began Mr. Pascal and Ms. Crane discussed the contents of the tape with VE Michael Bryant. I was able to pass the test because it contained the two sentences (except for changing "Tom to "Don") taught by Mr. Pascal on August 4, 1991, that I had memorized.

14. Attachment 6 is a transcription of the above discussion from a tape recording I made when I attended the examination session held on September 14, 1991. It is a complete and accurate transcript of the intelligible portions of the conversation concerning the content of the Morse code tape used to administer the examination.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 2, 1992.

Christine F. McElwain
Christine F. McElwain

Attachments

DEC 03 '92 11:58AM

Chris McEllurin

12-2-92

Attachments 1A & 1B (dated 8-4-91)

P.2

Legend

- Encircled items (O) were not reviewed or discussed during the classroom session.
- #A#, # (2A 13.1 2A 4.1 etc.) indicates where in the question pool a question dealing with a particular subject can be found.
- Notes in the margin clarify the classroom instruction

cm
8/4/91

Items circled were not reviewed in the novice part of class

Novice Seminar.

Definitions:

AMATEUR RADIO SERVICE A radio communication service of self-training, intercommunication, and technical investigation carried on by amateur radio operators.

AMATEUR RADIO OPERATOR A person who holds a valid license to operate an amateur radio station, issued by the Federal Communications Commission.

CLASSES OF OPERATOR LICENSES

1. Novice, the entry level.
2. Technician - ~~None~~
3. General ~~13wpm~~
4. Advanced ~~50%~~
5. Amateur Extra - ~~20"~~

NOVICE PRIVILEGES

80 meters
3.700 to 3.750 MHz
A1A (CW) only
200 watts PEP

40 meters
7.100 to 7.150 MHz
A1A (CW) only
200 watts PEP

15 meter
21.100 to 21.200
A1A (CW) only
200 watts PEP

10 meters
28.100 to 28.300 MHz
A1A (CW) and F1B (digital)
200 watts

10 meters
28.300 to 28.500 MHz
A1A (CW) and J3E (SSB phone)
200 watts

1.25 meters
222.10 to 223.91 MHz
All amateur emissions
25 watts maximum

0.23 meters
1270 to 1295 MHz (1.2 GHz)
All amateur emissions
5 watts

WHO CAN BE AN AMATEUR RADIO OPERATOR ?

Anyone can become an amateur radio operator EXCEPT a representative of a foreign government.
Their are no age requirements.

WHO CAN BE A CONTROL OPERATOR?
Any licensed amateur operator.

WHAT YOU CAN NOT DO .

1. You can not charge to transmit or receive messages.
2. No use of profanity, indecent, or obscene words. (on the air)
3. Play music.
4. Jam or send false signals. Interfere with another station
5. Use secret codes or ciphers.

WHAT YOU MUST DO.

1. You must identify your station every 10 minutes and at the end of your contact.
2. Answer any violations in writing within 10 days of receipt to the office that issued the violation.

SAFETY.

1. When working on an antenna tower, always wear a carefully inspected safety belt/climbing belt.
2. When working on the ground around the tower, wear a hard hat.
3. Don't work around power lines.
4. To prevent injury and damage to equipment especially during lightning storms. Ground ALL STATION EQUIPMENT.

BE A GOOD NEIGHBOR.

1. Minimize on-the-air tuning by using a dummy load. A dummy load is like an antenna, the transmitter thinks it is an antenna except it does not radiate a signal.
2. Minimize harmonic interference to the neighbors T.V. and radios by using a LOW PASS FILTER ON YOUR H.F. TRANSMITTER

WHAT IS ELECTRICITY?

A very basic definition is the flow of electrons through a conductor. We have two types of current. A/C (alternating current) ie. household current 120 volts that alternately changes the direction of flow (60 times per second). And we have D/C current (direct current) ie batteries, the current flows in only ONE DIRECTION.

The basic unit of voltage is the VOLT. (simple isn't it) The electrical principle that relates voltage, current, and resistance is OHM'S LAW.

COMMON USE EQUIPMENT.

To determine if the antenna is tuned for the proper frequency (resonate) and to check the overall operation of the transmitter and antenna we check the STANDING WAVE RATIO or reflected power, (we don't want any reflected power) the S.W.R. is measured with a SWR meter. (that's simple)

FREQUENCY CONVERSIONS

1. Most modern radios use MHz or megahertz. Some of the questions are in KHz or kilohertz. The conversion is easy move the decimal place over three places.
7125 KHz = 7.125 MHz

2. Most of you have heard hams talking about what bands they use, and to complicate things they use METERS. So how do you know what meter band a frequency belongs? Easy divide 300 by the frequency.

$$\frac{300}{3.750 \text{ MHz}} = 80 \text{ meters}$$

$$\frac{300}{7.300 \text{ MHz}} = 40 \text{ meters}$$

3. HARMONICS. no problem just multiply by the harmonic number.
 7.100 MHz times the 2nd harmonic
 7.100 MHz X 2 = 14.200 MHz
 so what is the 4th harmonic of 7.100 MHz?
 7.100MHz X 4 = 28.400 MHz


SYMBOLS USED ON SCHEMATIC DIAGRAMS.

RESISTOR  2F1.1 1.3

CAPACITOR 

EARTH-GROUND  2F5.1 2F5.4

DIODE 

BATTERY 

FUSE  2F3.1


ANTENNA  2F6.1 2G-1-1.5

2F7.4 NPN TRANSISTOR  collector emitter

PNP TRANSISTOR  2F7.2 7.3

MICROPHONE 

SPEAKER 

2F2.1 SWITCH  2F2.5

iron core inductor

ANTENNA WIRE.

THEIR There are basically two types 1. COAXIAL CABLE and 2. Ladder line. Now, only use coaxial cable, and remember most applications will require coaxial cable. What is the answer to the questions about antenna wire? COAXIAL CABLE, or simply called coax. The impedance is 50 to 52 ohms for our purposes.

ANTENNAS.

The 3 basic antennas are:

1. BEAM, 2. VERTICAL, 3. DIPOLE

BEAM ANTENNAS.

The most common is the yagi, usually a 3 elements and often a 3 band antenna 10 15 20 meters. The other common beam is the cubical quad antenna. Beam antennas transmit and receive stronger in one direction.

VERTICAL ANTENNAS.

Normally used on VHF and UHF and vehicle antennas (although there are HF vertical antennas) they are 360 degrees coverage

coil used in power supply

2F6.1 6.2 6.4 6.3 7.5

Not discussed

Not discussed

DIPOLE.

The most common antenna for 40 and 80 meters. It is a half wavelength wire that is center feed.

HOW TO CALCULATE THE LENGTH OF A QUARTER WAVE VERTICAL ANTENNA.

$$\text{Length in feet} = \frac{234}{\text{frequency MHz}}$$

example for a 10 meter 1/4 wave on 28.200 MHz

$$\frac{234}{28.200 \text{ MHz}} = 8.3 \text{ feet or } 8'4"$$

HOW TO CALCULATE THE LENGTH OF A HALF-WAVE DIPOLE ANTENNA

$$\text{Length in feet} = \frac{468}{\text{frequency in MHz}}$$

example for a 10 meter 1/2 wave dipole on 28.200 MHz

$$\frac{468}{28.200 \text{ MHz}} = 16.6 \text{ feet or } 16'7"$$

BASIC PARTS OF THE STATION.

1. TRANSMITTER
 - A. microphone for radiotelephone use.
 - B. telegraph key for A1A (C.W.)

2. RECEIVER

Today these are usually combined as a TRANSCEIVER.

3. POWER SUPPLY
4. SWR BRIDGE
5. ANTENNA SWITCH (if multiple antennas are used)
6. ANTENNAS
7. DUMMY LOAD

O - circled items were not mentioned as parts of a radio station

REPEATERS

Repeaters are used to extend the operating range of portable (handie-talkies) and mobile radios. (base stations too). Often repeaters have features such as AUTOPATCH. this enable the operator to make telephone calls from the mobile or portable radio. (or from the base if the telephone line is out). The parts of a repeater are 1. Receiver 2. Transmitter 3. Controller 4. Duplexer 5. Antenna 6. Autopatch 7. Power supply.

The radio duplexes, which means it receives on one frequency while it simultaneously transmitted on another frequency. The difference in frequency is called the OFFSET.

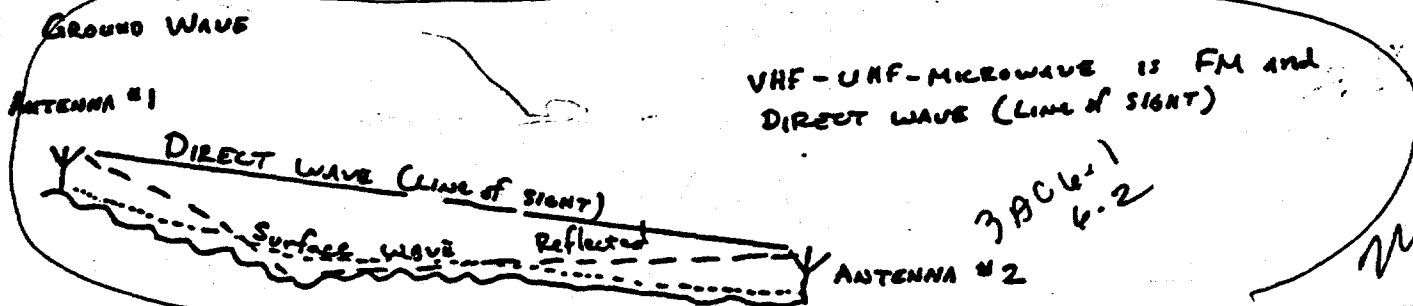
On 2 meters the offset is 600 KHz up or down from the receiving frequency or output

220 MHz is down 1.600 MHz

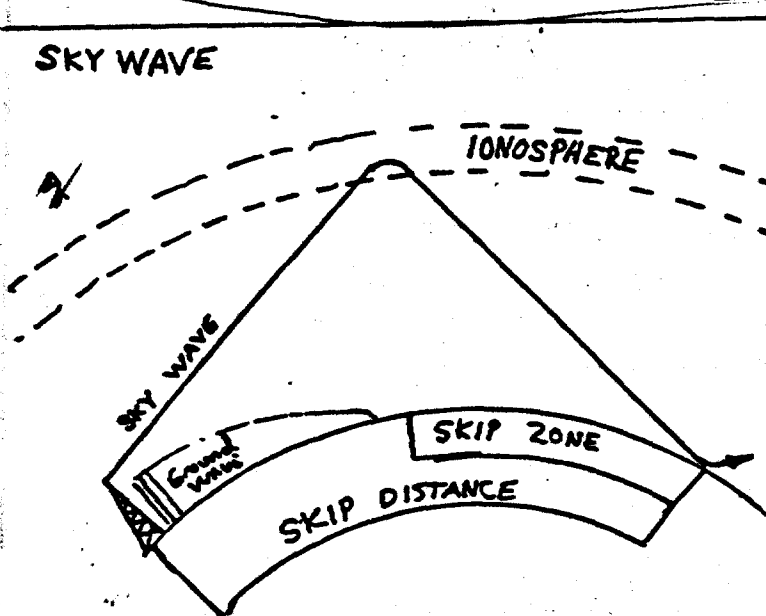
440 MHz is 5.0 MHz up or down. (Southern California is down)

Most repeaters are located on mountains and have line-of-sight with the mobile users this greatly increases the range of the users.

PROPAGATION.



SKY WAVE



203.1
203.12
203.4

Ionosphere was discussed but not as it relates to skip and was not discussed in novice part of class

DEC 03 '92 11:58AM

P.2

Chris McEllurin

12-2-92

Attachments 1A & 1B (dated 8-4-91)

Legend

- Encircled items (O) were not reviewed or discussed during the classroom session.
- #A#, # (2A B.1 2A4.1 etc.) indicates where in the question pool a question dealing with a particular subject can be found.
- Notes in the margin clarify the classroom instruction